

1 AMENDMENTS TO THE SPECIFICATION

2
3 1. Replace the paragraph on page 2 beginning at line 5 with the following paragraph:

4 Photocopiers, printers, plotters, and facsimile machines are examples of devices that may
5 utilize an inkjet printing or imaging process. As used in this disclosure "inkjet device"
6 encompasses any type of device using an inkjet process. Also, for purposes of the following
7 description, the portion of the inkjet device other than the inkjet cartridge will be referred to
8 herein simply as an inkjet device whether or not the inkjet cartridge is installed. The portion of
9 the inkjet device that carries the consumable ink for the inkjet imaging process will be referred to
10 as an [""]inkjet cartridge[""] (also referred to throughout this disclosure simply as a "cartridge")
11 regardless of the particular design and regardless of the other components included on the device
12 such as a print head and associated electrical lines and contacts.

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14 2. Replace the paragraph on page 2 beginning at line 14 with the following paragraph:

15 Figure 1 is a view in perspective of a typical prior art inkjet cartridge 100. Inkjet
16 cartridge 100 includes a container 101 adapted to contain a supply of ink (the ink not being
17 shown in the figure). The bulk of container 101 is generally rectangular in shape with a lower
18 portion 102 projecting from the rest of the container. Print head assembly 104 is located on
19 lower portion 102 of container and includes a large number of minute, electrically stimulated
20 orifices or inkjets 105 through which ink from container 101 is ejected in the printing process. It
21 will be appreciated that the orifices or inkjets are shown diagrammatically in Figure 1 in an
22 exaggerated scale, and that the orifices are in fact very small in order to produce the desired

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2 5. (Original) The inkjet cartridge refurbishing system of Claim 1 further including an auto-
3 cutoff device being operable to automatically deactivate the pump assembly.
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5 6. (Original) The inkjet cartridge refurbishing system of Claim 5 wherein the auto-cutoff
6 device includes a timer and wherein the auto-cutoff device is operable to automatically
7 deactivate the pump assembly after a set period of operation measured by the timer.
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9 7. (Original) The inkjet cartridge refurbishing system of Claim 1 further including:

10 (a) a housing having the pump assembly mounted in an interior thereof; and

11 (b) a fill gun holster mounted on an exterior of the housing.
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13 8. (Original) The inkjet cartridge refurbishing system of Claim 7 wherein the supply
14 conduit extends from the housing to a supply conduit fitting on the handle of the fill gun.
15

16 9. (Original) The inkjet cartridge refurbishing system of Claim 1 wherein the pump
17 assembly is a peristaltic pump assembly.
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19 10. (Currently Amended) A method of refurbishing an inkjet cartridge, the method including
20 the steps of:

21 (a) inserting a fill needle of a fill gun into the inkjet cartridge;

1 image resolution. The commands or electrical stimuli required to operate the orifices or inkjets
2 105 are applied to print head assembly 104 through electrical conductors 106 which terminate at
3 contact pads 107 on a side of container 101. An inkjet printing device in which cartridge 100 is
4 to be used will include a corresponding set of electrical contacts exposed so as to make contact
5 with contact pads 107 on the cartridge. The electrical signals required for operating print head
6 assembly 106 originate from a print control system (not shown) included in the inkjet imaging
7 device. The illustrated prior art inkjet cartridge 100 also includes additional orifices facilitating
8 fluid communication to ink container 101. The first additional orifice comprises an opening 109
9 commonly referred to as a vent opening or vent hole. The second additional orifice comprises an
10 opening which is commonly referred to as a maze opening or maze hole located on the surface
11 of cartridge 100 indicated by arrow 110. The maze hole is associated with a ball that functions as
12 a check valve to prevent the flow of material out of container 101.

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14 3. Replace the paragraph on page 4 beginning at line 2 with the following paragraph:

15 The present invention includes both apparatus and methods for refurbishing inkjet
16 cartridges. An inkjet cartridge refurbishing apparatus according to the present invention includes
17 a pump assembly with a fluid intake line (also referred to throughout this disclosure as an "ink
18 intake," an "ink intake line," or an "intake line") which can be inserted into a bottle or other
19 reservoir of ink or flushing/cleaning material. Connected to the output of the pump assembly is a
20 fill gun (also referred to throughout this disclosure as an "inkjet cartridge fill gun" or simply a
21 "gun") having a fill needle mounted on a handle. The fill gun is operated by inserting the fill

1 needle into an inkjet cartridge and activating a fill trigger switch on the fill gun to activate the
2 pump assembly and pump ink into the cartridge.

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4 4. Replace the paragraph on page 4 beginning at line 9 with the following paragraph:

5 An inkjet cartridge refurbishing apparatus according to the invention preferably includes
6 an auto-cutoff device that controls the volume of fluid pumped into the cartridge. The auto-
7 cutoff device may include a timer that can be set to a certain length of time. The timer is
8 activated when the fill trigger switch is actuated and causes the auto-cutoff device to send a
9 control signal to deactivate the pump assembly when the time has run out.

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11 5. Replace the paragraph on page 5 beginning at line 13 with the following paragraph:

12 Figure 4 is a mostly diagrammatic representation of the inkjet cartridge filling fill gun
13 included in the inkjet cartridge refurbishing system shown in Figure 2.

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15 6. Replace the paragraph on page 6 beginning at line 17 with the following paragraph:

16 Figure 3 provides a diagrammatic representation of the various components of inkjet
17 cartridge refurbishing system 200 that are housed in the illustrated housing 207 in Figure 1. In
18 particular, Figure 3 shows a pump assembly 301 that includes a pump 302 driven by a suitable
19 motor 303. Pump assembly 301 also includes a pump intake connected to intake line 201, and a
20 pump outlet connected to ink outlet line 305 (also referred to throughout this disclosure as an
21 "ink outlet" or "outlet line"). Outlet line 305 extends to a suitable fitting 306 on an external
22 surface of housing 207. A controller 304 is also included in pump assembly 301 for controlling

1 the operation of pump 302 in response to suitable control signals at control inputs of the
2 controller.

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4 7. Replace the paragraph on page 7 beginning at line 2 with the following paragraph:

5 The controller 304 of pump assembly 301 includes a number of control inputs, each
6 connected to a respective electrical control line that extends to a switch mounted on the fill gun
7 as will be described further below with reference to Figure 4. Figure 3 shows a separate control
8 line 308 for a kill switch and a separate control line 309 for a fill trigger switch. In the preferred
9 form of the invention, the electrical control lines extend from the controller 304 to a suitable
10 fitting 310 on an external surface of housing 207. A suitable connecting line connects to this
11 fitting 310 and extends to the fill gun as will be described below with reference to Figure 4. As
12 discussed above with reference to Figure 2, the electrical connecting line adapted to connect to
13 fitting or connector 310 may be combined with a suitable ink conduit (also referred to throughout
14 this disclosure as an "ink supply conduit" or a "supply conduit") that connects between fitting
15 306 and the fill gun 203 to form a single line such as supply/control line 204 in Figure 2.

16
17 8. Replace the paragraph on page 8 beginning at line 6 with the following paragraph:

18 In the form of fill gun shown in Figure 4, a supply fitting arrangement (also referred to
19 throughout this disclosure as an "ink supply fitting arrangement") shown generally at 406 couples
20 fill needle 402 to the ink conduit portion of ink supply line/control ~~ing~~ line 204. This supply
21 fitting arrangement encompasses a conduit 404, needle connector 407, and a supply fitting 403
22 preferably located at the base or bottom of grip portion 401. A suitable check valve 405 is also

1 preferably included in conduit 404 to prevent ink from flowing back in the direction from fill
2 needle 402 to ink supply line/control line 204.

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4 9. Replace the paragraph on page 11 beginning at line 8 with the following paragraph:

5 It will be noted that the basic components of the system illustrated in Figure 2 may vary
6 widely within the scope of the present invention. For example, while Figure 2 shows a combined
7 ink supply/control line 204, the individual components in the line may be separated. That is,
8 rather than including the ink supply conduit and control lines in a single line 204, the ink supply
9 conduit and the control lines may be entirely separate lines. Also, any number of fitting
10 arrangements may be used to make the required connections between conduits in the system. A
11 preferred pump 302 comprises a peristaltic pump, however, substantially any type of pump may
12 be used to drive ink to the fill needle and into the cartridge being refurbished according to the
13 invention. Other variations within the scope of the invention include different handle
14 configurations other than the pistol-grip configuration shown in Figure 4. It will also be
15 appreciated that there is a large variety of control circuits that may be used according to the
16 invention to control the operation of pump assembly 301 through various switches and through a
17 volume controller such as timer 311. Furthermore, the invention is not limited to the timer based
18 auto-cutoff device described above, rather any device adapted to cut off the flow of ink to the fill
19 gun and fill needle after a given volume of fluid has been transferred may be used the present
20 cartridge refurbishing system.